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ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED ISSUES: OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

INTRODUCTION

1. This paper was prepared by the secretariat in response to decision 2/16 of the Preparatory Committee at its second session, in which the Secretary General of the Conference was requested"... to elaborate for its third session the potential areas for action... which would form the framework of an international strategy for the environmentally sound management of solid wastes and sewage". This work should also take into account decision 1/22 of the Preparatory Committee at its first substantive session.

2. In preparing this report, and the corresponding background document (A/CONF.151/PC/76), the UNCED secretariat was assisted by the United Nations system of organizations and specialized agencies whose helpful and constructive support has made an indispensable contribution to this report. The report, in particular, reflects extensive inputs from the United Nations Centre for Human Settlements (Habitat), the World Health Organization and the World Bank. Non-governmental organizations, in particular, the International Solid Waste Association, academic and research institutions also provided especially helpful contributions towards the preparation of the report.

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3. In pursuing the decision of the Preparatory Committee, the UNCED secretariat has identified a number of options for action which could be used as a basis for a contribution to Agenda 21. The options for action focus on those areas which respond to the needs identified in the Background Document (A/CONF.151/PC/76). In defining the principal programme areas the report recognizes that environmentally-sound waste management must go beyond simply disposing of, safely, the wastes that are generated and seek to address the root cause of the problem by attempting to change unsustainable patterns of production and consumption. Defined thus, the options for action under the programme on environmentally sound management of solid wastes and sewage present a unique opportunity to reconcile development with environmental protection.

4. Correspondingly the framework of the options for action is founded on a hierarchy of objectives: first, minimize waste generation; second, recycle to the extent possible the wastes that cannot be avoided; and third, dispose in an environmentally-safe way of the non-recyclable fraction of unavoidable wastes. While a programme based on such a hierarchy of objectives would be responsive to the waste management requirements of those with access to a suitable service, special attention is still required to extend services to unserved critical urban poor populations. Such a four-goaled programme constitutes a comprehensive and environmentally-responsive framework for managing wastes in the future.

5. It is recognized that some of these goals cannot be accomplished immediately in either industrialized or developing countries. Changing production and consumption patterns which must characterize improvements in waste management in industrialized countries require public support and incentives to manufacturers and can take considerable time to put into effect. Current consumption levels in developing countries are low and substantial increases will be inevitable as these countries attain basic standards of economic welfare. The instilling of sound waste management policies and approaches now could help ensure a sustainable development process for the future. In addition, some improvement in both the quality of service and environmental protection achieved by present day waste disposal practises is required for most developing countries. For the, poor who already minimize and reuse much of their wastes the priority is often to have access to basic waste disposal systems.

SECTOR-WIDE OBJECTIVES FOR WASTES

6. Following are the overall sector-wide objectives:

(a) Stabilize waste production

(b) Ensure that the living and working environment of all people is isolated from all forms of waste

(c) Ensure that waste-related surface and ground water pollution is eliminated

(d) Ensure that all wastes are safely reutilized.

PROPOSED PROGRAMME AREAS

7. The following four major waste-related programme areas are proposed as options for consideration by the Preparatory Committee:

MINIMIZING WASTES
MAXIMIZING WASTE REUSE
PROMOTING SAFE WASTE DISPOSAL
EXTENDING WASTE DISPOSAL SERVICE COVERAGE.

8. The above programmes are not in any order of priority, which will vary from one country to the next. In fact, for many developing countries the programme to improve and extend waste disposal service coverage will remain the first priority for many years to come. The four programme areas together will help in the achievement of sector-wide goals for wastes in a comprehensive manner. Within each programme area, a number of actions will need to be undertaken and should seek to build upon current activities and programmes at the global, regional, national and local levels and to address the many gaps identified in the background paper.

A. MINIMIZING WASTES

Basis for action

9. Unsustainable patterns of production and consumption are increasing the quantities and variety of environmentally persistent wastes at unprecedented rates. The trend could double the quantities of wastes produced by the end of the century and increase quantities by between four and five fold by the year 2025. A preventive waste management approach focused on changes in life-styles and in production and consumption patterns offers the best chance for reversing current trends.

Objectives

10. Countries, assisted by international organizations, could stabilize their waste production over an acceptable time frame.

11. Countries, assisted by international organizations, could strengthen procedures for assessing waste quantity and composition changes and for making waste minimization policies operational.

12. Some targets of the programme could include:

(a) By [2000] ensure sufficient national, regional and international capacity to access, process and monitor waste trend information and implement waste minimization policies.

(b) By [2000] all industrialized countries and by [2020] all developing countries stabilize per capita waste production rates.

(c) By [2025] produce annual audits with full global coverage.

Activities

13. Monitoring is a key prerequisite for keeping track of changes in waste quantity and quality and their resultant impact on the environment. The following specific activities could be undertaken to support monitoring:

(a) Relevant United Nations bodies coordinate the development of methodologies for country-level waste monitoring and use and expand existing monitoring mechanisms such as UNEP's Global Environmental Monitoring System (GEMS); WHO's Drinking Water Supply and Sanitation Coverage Data and Global Epidemiological Statistics; and UNCHS (Habitat)'s Human Settlements Statistical Data Base (HSDB.stat) programme for developing a harmonized data collection system.

(b) Countries, assisted by international organizations and bilateral agencies, identify and strengthen local institutions for gathering the requisite data.

(c) The relevant United Nations bodies undertake to process the data and report systematically to an appropriate United Nations forum.

(d) Countries use the data to assess how environmentally responsive their waste policies are and for their national planning and budgeting.

14. Instruments for waste minimization will need to be identified and widely disseminated. These could include:

(a) International organizations could undertake an extensive review of the effectiveness of all waste minimization instruments, and identify potential new instruments that could be used and techniques by which they could be made operational at the country level. Guidelines and codes of practice could be developed.

(b) Countries could make waste prevention and minimization the principal objective of their waste management programmes.

(c) Countries could provide and test a range of incentives to encourage industry to change product design and reduce industrial process wastes.

(d) NGOs and consumer groups could sensitize consumers to purchase environmentally benign products and thereby develop selective purchasing by informed buyers.

(e) Countries could implement demonstration and pilot programmes to optimize waste minimization instruments.

15. Education, Information and Research aimed at promoting waste minimization are crucial for obtaining citizen and industry support.

(a) Educational establishments could include within school curricula principles and practices of preventing and minimizing wastes and the environmental impacts of waste.

(b) Countries together with NGOs could mount public awareness campaigns to reduce wastes.

(c) International organizations could develop media packages for adaptation and use in local campaigns.

(d) Countries could increase funds for applied research on waste minimization and provide an enabling framework for households and industry to do likewise.

(e) International organizations could establish a clearing house with extensive networking for information exchange on waste minimization.

16. Capacity building will be crucial to allow countries, especially developing countries, to develop and implement waste minimization at the local and national levels. Some of the activities that could be undertaken are:

(a) The relevant United Nations bodies and international donors, in cooperation with governments and NGOs, could provide substantially increased technical and financial assistance to build up technical, managerial, planning, monitoring and administrative capacities to implement waste prevention and minimization as the priority objective of overall waste management programmes.

(b) Countries could facilitate transfer of waste reduction technologies to industry, and establish quantitative targets for effluents and solid wastes and for raw material use and energy consumption.

B. MAXIMIZING WASTE REUSE

Basis for action

17. The exhaustion of traditional disposal sites, stricter environmental controls governing waste disposal, and increasing quantities of more persistent wastes have all contributed to a rapid increase in the cost of waste disposal services. Costs could double or triple by the end of the decade. Current disposal practices pose a threat to the environment. As the economics of waste disposal services change, waste recycling and resource recovery are becoming increasingly cost-effective. Future waste management programmes should take maximum advantage of resource-efficient approaches to management.

Objectives

18. Countries, assisted by international organizations, could recycle an increasing proportion of the generated wastes with time.

19. Countries and international organizations could ensure the availability of information techniques and appropriate policy instruments to encourage and make operational waste recycling schemes.

20. Some targets of the programme could include:

(a) By [2000] ensure sufficient national, regional and international capacity to implement waste recycling policies and actions.

(b) By [2010] all countries to recycle a third of the total wastes generated.

(c) By [2025] all countries to recycle no less than a half of the total wastes generated.

Activities

21. Information and research is required to identify promising socially-acceptable and cost-effective forms of waste recycling relevant to each country. For example, supporting activities could include:

(a) International and regional organizations could undertake an extensive review of options and techniques for recycling all forms of wastes. Policies for recycling could be made an integral component of national and local waste management programmes.

(b) Countries, assisted by international donors, could assess the extent and practice of waste recycling operations currently undertaken and identify ways by which these could be intensified and supported.

(c) Countries, assisted by international donors, could increase funding for applied research pilot programmes to test out various options for recycling, including the use of small, cottage-based recycling industries; compost production; treated wastewater irrigation; and energy recovery from wastes.

(d) International and regional organizations could produce guidelines and best practices for waste recycling.

(e) Relevant United Nations bodies, in cooperation with governments and NGOs, could intensify efforts at collecting, analyzing and disseminating to key target groups relevant information on waste issues. Special research grants could be made available on competitive basis for innovative research projects on recycling techniques.

22. Incentives for waste recycling are numerous. Countries could make operational a number of policies which will provide incentives to industry, institutions, commercial establishments and individuals to recycle wastes instead of disposing of them.

(a) Governments could offer prize awards to local and municipal authorities that recycle the maximum proportion of their wastes.

(b) Countries assisted by NGOs could extend soft loans, and provide technical assistance to informal waste recycling operations.

(c) Countries could apply economic and regulatory instruments, including tax incentives to support the principle that generators of wastes pay for their disposal.

(d) Countries could implement specific mechanisms such as deposit/refund systems as incentives for recycling.

23. The Transfer of technologies could support waste recycling and reuse:

(a) The United Nations, inter-governmental organizations, and bilateral and multilateral donors could include the transfer of recycling technologies, such as machinery for reusing plastics, within their technical co-operation and aid programmes.

(b) The United Nations, regional organizations, NGOs and national governments could develop and improve existing technologies, especially indigenous technologies, and facilitate their transfer under on-going regional and inter-regional technical assistance programmes.

(c) National governments could facilitate technology transfer for waste recycling by exempting such technologies from import taxes and other restrictions.

24. Training will be required to reorient present day waste management practices to include waste recycling. The following is an indicative list of actions that might be incorporated:

(a) The United Nations, regional organizations and international donors could include waste recycling in-service programmes as integral components of their technical assistance programmes on waste management, urban management and infrastructure development.

(b) Existing training programmes on water supply and sanitation could be expanded to incorporate techniques and policies for waste recycling.

(c) The advantages and civic obligations associated with waste recycling could be included in school curricula and relevant general educational courses.

(d) NGOs, community-based organizations and public interest groups in collaboration with local municipal authorities could do much to mobilize community support for waste recycling through focused community-level campaigns.

25. Capacity building to support increased waste recycling could focus on the following areas:

(a) Ways by which national governments can make operational national policies and incentives for waste management.

(b) Methods of enabling local and municipal authorities to mobilize community support for waste recycling by involving and assisting the informal sector waste recycling operations and undertaking waste management planning which incorporates resource recovery practices.

(c) Financial and technical assistance will be required for resource recovery infrastructure planning and implementation.

C. PROMOTING SAFE WASTE DISPOSAL

Basis for action

26. Even when wastes are minimized and recycling has been maximized, some wastes will still remain. Even after treatment, all discharges of wastes have some residual impact on the receiving environment. Consequently, there is scope for improving waste treatment and disposal practices such as, for example, avoiding the discharge of sludges at sea. In developing countries the problem is of a more fundamental nature: less than 10 per cent of urban wastes receive any form of treatment and only a small proportion of treatment is in compliance with any acceptable quality standard.

Objectives

27. Countries, assisted by international organizations, could treat and dispose safely an increasing proportion of the generated wastes with time.

28. Some targets of the programme could include:

(a) By [1995] all countries could establish waste treatment and disposal quality criteria based on the nature and assimilative capacity of the receiving environment.

(b) By [2000] countries could establish sufficient capacity to undertake waste-related pollution impact monitoring and conduct regular surveillance.

(c) By [2000] countries could ensure that no sewage sludges are disposed at sea and that at least 50 per cent of all sewage wastewaters and solid wastes are treated or disposed of in conformity with acceptable environmental quality criteria.

(d) By [2025] countries could dispose of all sewage, wastewaters and solid wastes in conformity with internationally agreed and accepted environmental quality criteria.

Activities

29. Standard setting and monitoring are two key elements essential for gaining control over waste-related pollution. The following specific activities are indicative of the kind of supportive actions that could be taken:

(a) Relevant United Nations agencies, in collaboration with international donors and national governments could establish national and, where relevant, local environmental quality standards based on international scientific criteria and guidelines.

(b) Relevant United Nations agencies and bilateral and multilateral donors to assemble and analyze the scientific evidence and association of pollution impacts of wastes in the environment and formulate and disseminate recommended international scientific criteria and guidelines.

(c) Bilateral and multilateral donors and lending institutions could include within their technical assistance programmes and agreements the provision of monitoring equipment and requisite training for their use.

30. Institutional reforms and capacity building will be indispensable if countries are to be able to quantify and mitigate waste-related pollution. Some activities to achieve this objective could include:

(a) Countries that do not have independent environmental control bodies could be encouraged to establish these at national and local levels. International organizations and donors could support needed manpower skill upgrading and provision of equipment.

(b) Countries could empower pollution control agencies with the requisite legal mandate and financial capacities to carry out their duties effectively.

(c) International agencies, local NGOs and formal technical training establishments could provide both formal and in-service training focused on pollution control, waste treatment and disposal technologies, and operations and maintenance of waste-related infrastructure. Inter-country staff exchange programmes could also be established.

(d) Countries, municipalities and local authorities, in collaboration with United Nations agencies, bilateral donors, international organizations and funding agencies could focus, as a first priority, on the rehabilitation and maintenance of existing facilities and concentrate technical assistance on improved maintenance practices and techniques; followed by the planning and construction of waste treatment facilities.

31. Information and research on various aspects of waste-related pollution control will be crucial for achieving the objectives of this programme. Activities in this area could include:

(a) An information clearing house to be established within a relevant United Nations agency with extensive networks at the regional, national and local levels to collect and disseminate information on all aspects of waste management, including safe disposal. Through the clearing house, strengthen existing regional networks and create new ones in regions that don't have them.

(b) Relevant United Nations agencies could prepare guidelines and technical reports on subjects such as the integration of human settlements land use planning with waste disposal; environmental quantity criteria and standards; waste treatment and safe disposal options; industrial waste treatment; and landfill operations.

(c) Research on critical subjects such as low-cost, low-maintenance wastewater treatment systems, safe sludge disposal options, and industrial waste treatment could be supported by the international donor community.

32. In appraising development projects in the fields of water supply and waste collection, the need for investments in waste treatment facilities should be considered.

D. EXTENDING WASTE DISPOSAL SERVICE COVERAGE

Basis for action

33. By the end of the century over 2.0 billion people will be without access to basic sanitation and an estimated half of urban populations in developing countries will be without adequate solid waste disposal services. As many as 5.2 million people, including 4 million children under 5 die each year from waste-related diseases. The health impacts are particularly severe for the urban poor. The health and environmental impacts of inadequate waste management, however, go beyond the unserved settlements themselves and result in water, land and air contamination and pollution over a wider area. Extending and improving waste collection and safe disposal services are crucial to gaining control over this form of pollution.

Objectives

34. The overall objective of this programme is to provide health-protecting, environmentally-safe waste collection and disposal services to all people. Specific supportive targets could be:

(a) By [2000] all countries should have necessary technical, financial and human-resource capacity to ensure the provision of waste services commensurate with needs;

(b) By [2025] all urban populations should be provided adequate waste services;

(c) By [2050] full urban waste service coverage should be maintained and full rural coverage with sanitation achieved.

Activities

35. Other Agenda 21 programme actions would contribute to the provision of waste services. These include:

(a) The Drinking Water Supply and Sanitation; and the Water and Sustainable Urban Development Programme areas of the Agenda 21 proposals on Freshwater Resources (document: A/CONF.151/PC/42/Add.7).

(b) The Environmental Infrastructure; and Human Settlements Management Programme areas of the Agenda 21 proposals on Human Settlements (document: A/CONF.151/PC/56).

(c) "The Basic Health Needs Related to The Environment" programme area of the Agenda 21 proposals on Environmental health aspects of development (document: A/CONF.151/PC/54).

36. Since most of these initiatives will require interventions within the human settlements context, an overall umbrella programme that coordinates and concentrates international efforts within the human settlements programme and leads to action at the national and local levels will prove essential.

The following activities are proposed under this programme area:

37. Policy changes at the national and local levels could enhance the rate of waste service coverage extension. These could include:

(a) The full recognition and use of the range of low-cost options for waste management including where appropriate their institutionalization and incorporation within codes of practice and regulation.

(b) Extension of waste management services to all settlements irrespective of their legal status.

(c) Integration of the provision and maintenance of waste management services with other basic services such as water supply and stormwater drainage.

38. Considerable financial and technical assistance will be required to increase coverage. National governments, in collaboration with the United Nations, international organizations, bilateral donors and multilateral financial institutions could undertake many activities of which the following are a sample:

(a) Adjust priorities within waste management programmes to give higher priority to meeting the waste disposal service needs of the unserved, especially, the unserved urban poor.

(b) Establish financing mechanisms for waste management service development in deprived areas including appropriate modes of revenue generation.

(c) Apply polluter pays principle by setting waste management charges at rates that reflect the true economic costs of providing the service and ensure that those that generate the wastes pay the full cost of disposing of it in an environmentally safe way.

(d) Participatory planning and implementation procedures that involve communities, especially women, could be institutionalized.

(e) Inter-country transfer of relevant technologies, especially technologies for high density settlements, could be encouraged.

39. Information and research activities could be enhanced. Countries, with the assistance of international organizations, bilateral donors and NGOs could, for instance:

(a) Find solutions and equipment for managing wastes in areas of concentrated populations. In particular, there is a need for appropriate refuse storage and collection systems and cost- effective and hygienic human waste disposal options.

(b) Prepare and disseminate guidelines, case studies, policy reviews and technical reports on appropriate solutions and modes of service delivery to unserved low-income areas.

(c) A Settlement Infrastructure and Environment Programme could be launched following the Conference to co-ordinate the activities of all United Nations agencies involved in this area and include a clearing house for information dissemination on all waste management issues.

40. International organizations, bilateral donors, NGOs in collaboration with national and local governments, could provide focused training on low-cost waste disposal options and participatory techniques for their planning and delivery. Inter-country staff exchange programmes among developing countries could form part of such training.

41. Improvements in management techniques are likely to yield the greatest returns in terms of improving waste management service efficiency. The United Nations, international organizations, bilateral donors and multilateral financial institutions could in collaboration with national and local governments develop and make operational management information systems (MIS) for municipal record keeping and accounting and for efficiency and effectiveness assessment.